GIBERSON (C. H.)

MEDICAL PRACTICE MODIFIED.

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MEDICAL PRACTICE MODIFIED.

A SEMI-CETENNIAL ADDRESS,

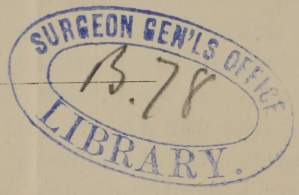
BEFORE THE

Medical Society of the County of Kings,

BY

CHARLES H. GIBERSON, M. D.,

BROOKLYN, May 2d, 1872.



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ADDRESS.

Mr. President, Ladies and Gentlemen :

Though honored by the good will which prompted my selection for the present duty, the feeling is not unaccompanied by a sense of its responsibility. You, my brethren, imposed the task, and your generosity is relied upon for kindly criticism.

This Annual Meeting is another proof of our interest in medical science, but more especially does it imply our devotion to the Medical Society of the County of Kings; to the principles embodied in its constitution, and we trust exemplified in the lives of its membership. Such occasions are among the few opportunities afforded us of communicating directly with the outside world. Private acts constitute the chief bond between physicians and the people; yet it is not unbecoming that reunions like these should have place. They lead to a better understanding of the relations which should ever exist between the laity and the professions. We thus hope to know each other better, to stimulate each other to increased confidence, to cultivate the respect born of actual knowledge of aims and hopes, as well as to promote the general good. Our Society has seen a number of gatherings like the present. It has endured the feebleness of infancy, the tottering steps of childhood, and now stands forth in full stature. It only lacks the completer development which follows proper aliment, exercise, and experience. Its organic law has been carefully revised, new life has inspired its counsels, its stated meetings are larger, and, we believe, more effect-

ive than ever before, whilst to its fellowship have been attracted new names and talents which promise to add much to its usefulness. We have now nearly two hundred members—a larger number than ever before attained. These facts are matters of congratulation. Though peculiarly gratified by accessions, we find them largely counterbalanced by the loss of brethren whose memories are sadly sacred. Some have fallen in the outset of the race, and talents of promise have been rudely crushed by our common foe. Others, whose names were a strength to our organization soon after its birth, have been cut off full of ripeness and good works. These bereavements tinge our reflections with sorrow, but are relieved by the thought that our loss is their eternal gain. They also admonish us "To work while the day lasteth, for behold the night cometh."

But we are reminded that this is no ordinary occasion in the history of our Society. It is its fiftieth birth-day—its first semi-centennial—its golden anniversary. These facts suggest new thoughts and hopes. Two dates stand out before us—1822 and 1872. These represent two histories, and the intervening space is crowded with events both novel and startling. One fact cannot fail to arrest attention—that of change—steady, progressive, inevitable change. This has pervaded the world of matter and of ideas. It has sometimes marked an advance; not always so. This constant, ever increasing element, has nowhere been more manifest than here. Brooklyn's growth has been no less a marvel to ourselves than to our neighbors. Its influence has kept pace with its increase. Its vices too—though not metropolitan—have failed to keep their secrets within the corporate limits.

Let us hastily glance at some of the particulars which make our great city of to-day so unlike the village of fifty years ago. It then contained a few thousand people, less than half a dozen churches, one district school, no public institutions, and not until twelve years later did it attain the rank of a city. Its few hundred buildings were clustered about the present sites of Fulton and Catharine ferries, whilst the spot on which we now stand was quite beyond the suburbs. Two years later—in 1824—a total

of 1013 votes was cast in the county for assemblyman, a number less than was last year polled in some of our more enterprising wards. In the department of morals, the description of fifty years ago will apply to-day. Says Furman in 1824:—"The people of Brooklyn, it is true, cannot be considered as rigid in religious matters as the saints of Oliver Cromwell's army, whose very cannon had on the inscription—'O Lord, open thou our lips, and our mouths shall show forth thy praise.' But they are far from being irreligious. The churches are well filled, religious societies are liberally supported, and vice is discountenanced."

This year Brooklyn had its first Board of Health. The president received $150 per annum. The first health physician was Dr. J. G. T. Hunt, who received $200 per year. These sums, compared with present rates, indicate the steps which have led up from the past to the present. Brooklyn was indeed small, yet she possessed a goodly number of truly royal souls. Tried in the fires of the Revolution and of the later war of 1812, they had learned courage, as have our people self-reliance, by the fiery ordeal but just passed. Among these sterling men were the founders of this Society. Two years before the rise of any other in the county, they, in obedience to a recent law, and actuated by professional enthusiasm, laid, with strong hands and believing hearts, the foundations of a structure which has grown with the city, and strengthened with the advance of medical knowledge. We honor the names of Drs. Ball, Wendell, Carpenter, Creed, DuBois and Vanderveer, practising physicians in the County of Kings, who on Monday, February 22, 1822, the anniversary of Washington's birth, met in the village of Flatbush to consider the formation of a County Medical Society. We are doubly grateful to these, and three others—Drs. Low, Hunt and Henry—who at an adjourned meeting held in the village of Brooklyn, March 2d, 1822, decided to organize, and elected the following officers;—Cornelius Low, president; Matthew Wendell, vice-president; Adrian Vanderveer, secretary, and John Carpenter, treasurer. These men joined hand with hand for mutual strength

and the general good. Not one of the nine survives to celebrate with us the Fiftieth Anniversary of their work. Their reward is with them, and our duty is plain; namely, to carry forward with equal zeal the labors they heroically began. We are denied their presence, but their example remains. We still have in our ranks those whose connection with the Society reaches back to within a few years of its origin. They yet bear part in its counsels They are the connecting link between the past of our history and its present. Their experienced hands take hold on either side, assisting us of the present with wisdom gained from those who went before.

But leaving this, let us enter the field specially marked out as the subject for this occasion. It is to indicate some of the relations which medicine in 1822 bears to the same in 1872,—to note certain changes which have occurred, and to observe the chief agencies in their production.

We have noticed some of the relations—political, religious and material—which Brooklyn as a village bears to Brooklyn the third city of the New World.

Now, in what respect do the founders of our Society differ from ourselves? How does the spirit of their times differ from that of ours?

That medical practice has changed is certain. That we act quite differently from them under similar circumstances is doubtless puzzling to honest minds. These pioneers, looking at history as it is and as it promises to be, enjoyed the dawn only of the day in which the sun has now risen several degrees. Yet they were co-laborers with some of the great men whose genius had already begun to illumine paths previously past finding out. They were the pupils of men who planted the seed which is producing the harvest we reap—who, with untiring energy, evolved secrets in nature which has revolutionized medicine and made the nineteenth century distinct from all others. Its beginning foreshadowed events which are now more fully realized. It was a sort of transition period, pregnant with promise. Yet our science was in an unsatisfactory state. There were several leading schools all professing the same principles,

but seeking by various interpretations to establish exclusive theories and formulæ for guiding practice. There was a want of harmony which paralyzed honest effort and weakened faith. The Brunonian theory which held sway in England was combatted and ridiculed by Broussais in France. Rasori in Italy, commencing with a belief in the doctrines of Edinburgh, improved upon them, as he supposed. To these several, Anglican, French and Italian, was added a fourth—the American. Its exponent was Benj. Rush, who moulded opinion both at home and abroad. He fascinated by his eloquence, whilst he convicted by his earnestness and perspicuity. Each system lived its brief space, and its disciples finally merged into the one great, harmonious, working body of to-day. Not that there are now no differences of opinion in the profession. They still exist, but instead of governing are subordinate; instead of hindering knowledge by counteraction, they stimulate by healthful rivalry.

But amid these divergent doctrines, a common spirit pervaded practice. All agreed on the necessity of treating promptly and energetically. Disease seems to have been regarded as an enemy seeking the speediest destruction of the individual. The treatment of the day was heroic. Not to actively interfere met with no response in mind of patient or practitioner. To delay using the lancet was equivalent to a misdemeanor. Emetics, revulsives, and counter-irritants were supreme. In truth, the adoption of some telling plan was thought the prime necessity.

I need scarcely refer to the different methods now pursued. Personal experience may acutely suggest the change. Some of the remedies then used are not heard of now; others are beyond hope of recovery; whilst a large class is yet found good. Our patients are allowed fresh air and cold water where both were once denied. Not to impose drugs on refractory stomachs is orthodox. Finally, the period has nearly arrived when the physician can reason thus:—Does this case demand my active interference, or may it safely be trusted to nature, assisted by a proper regimen? Now, we are more radical in

investigation, but more conservative in practice. Where they acted we often delay and watch.

We thus perceive some of the relations which medicine of the earlier date bears to that of the present.

Before seeking the causes which have produced the change observed, it may be desirable to understand that no apology is offered for the supposed short-comings of our antecedents. It is not demanded. They sought as earnestly after correct principles as do we, and had their labors been prolonged to our time, they would doubtless be in the front rank of the army of improvement. They lived in a period of scientific chaos, yet set in motion some of the forces which have culminated in the altered practice of to-day. For it is the practical part of medicine which should most interest us. Vain will be our endeavors after knowledge, and mistaken our appreciation of the ends of science, unless they tend towards the relief of suffering. Science and art are not incompatible. Eager pursuit after the former may blunt our relish for the latter, but by so much does medicine fail of its true aims. Whilst a few men are philosophers only, to the exclusion of being sound practitioners, the great majority of minds are so constituted that the highest scientific attainments possible, coupled with a due sense of their proper ends, make the possessor as far superior to him who lacks them, as is the disciplined army to the body of raw recruits.

But to return. The agencies which have produced these noticeable changes are both direct and indirect. The generally accepted explanations are various, often erroneous. Physicians themselves, in attempting to uncoil the chain of events which fill the gap of fifty years, have sometimes mistaken causes for effects and *vice versa*.

All are familiar with the more noted acquisitions of modern medicine. I shall but briefly refer to them, and more fully consider agencies not less important because less direct. As Prof. Huxley says: "Shall try to distinguish rightly between prominent and important events."

From among causes direct, let us first question anatomy to discover the value of its contributions to this end.

Early in the century it was as well understood in some of its departments as at present. The gross appearances of tissues and organs had been accurately demonstrated. Yet the subject was a narrow one compared with its modern extent. Professors, and teachers, and authors, had not as a rule gone beyond general characteristics. It was coupled with physiology in the regular college course. But the field soon widened. Bichat, at a single stride, overleaped the confines of former research. Not content with general knowledge, he sought after the constituents which go to make up organs—he resolved the body into its elementary tissues. It was his crowning effort; accomplished in 1801. His labor was the beginning of a new epoch. Others, inspired by his teachings, went further: they sought the minute structure of the elements he demonstrated. Improvements in the microscope in 1832, aided vastly in this work. A new field was thus rapidly opened up, constituting histology.

To this department then we naturally turn for that minute knowledge of tissues which, in a most marked degree, has changed the currents of medical investigation, and modified the art. Prior to this, medicine was a comparatively "light and slender thing." Without a discrimination of these microscopic elements, we could have no sure foundation for other branches not less important. Without the demonstration of ultimate cells, we could not accurately determine any process either of life or disease. Histology now constitutes a leading branch of the science. Not a tissue but has been analyzed, not an element but has been examined.

Having here seen the minutiæ of cellular life and development, a single step introduces us to the department of physiological function--to the results of actions and reactions constantly taking place in this human laboratory, where each cell is a factor in sustaining life, and in reproducing new forces to perform the work of those constantly falling by the way.

There has been a physiology ever since the birth of medicine, but for two thousand years was little more than the rude observation of ordinary animal function. Not until Harvey was it worthy the name of science.

His efforts were ably seconded by Hoffman, Boerhaave and Haller. Yet they were unable by reason of radical defects, since supplied, to establish it on a basis commensurate with its importance. Not until Magendie, in the third decade of our century, had the actions of organs been studied, whilst yet imbued with that mysterious principle—life. Dead tissue had been dissected, but its inanimate particles could give no just idea of function. Magendie, by vivisections, not only showed results, but demonstrated the modes of their production. The actions of the heart and its appendages ; peristaltic movement ; respiration, in all the beauty of its adaptation to a specific end ; the absorbent system, permeating every part—all these and many more were first observed by him.

The only method of arriving at correct conclusions in physiology, viz., by experimentation, is a feature of its modern study. The time for philosophic dreaming is past. He who will win must observe facts brought out by skilful experiment. The last twenty-five years have seen more of it than all previous time. A precision has also been given to observation by the employment of new instruments. Nervous activity is thus made to write its own record. The pulse now portrays its features in mathematical characters. But I stop not to specify these aids. They were fully described by him who last year occupied this place.

By a familiar illustration we may get a glimpse of how modern physiology has affected medicine. Take digestion, which lies at the base of life and health, and compare the knowledge now had with that of fifty years ago. Some facts had then been acquired by observation, and by experiments on inferior animals and man, but actual demonstration was wanting. In June 1822, three months after our Society was organized, an accident happened to Alexis St. Martin, which was taken advantage of by Dr. Beaumont of the U. S. Army. In 1825, his experiments, known to all, were begun. They were continued at intervals to 1856. In 1833 his work "On the Gastric Juice and the Physiology of Digestion" was published. With it a new era dawned. Correct calculations took

the place of ingenious speculations. Indirectly, this event also taught much—it proved that an artificial opening through the walls of the stomach is not incompatible with life and health. Physiologists were led to create such in the lower animals. This success assured, no course of medical instruction would be thought complete without recourse to the new method of demonstration.

The information repeated experiments have given of other fluids instrumental in converting our daily food into appropriate pabulum for nourishment and growth, has had an effect scarcely less striking than the researches of Beaumont. More correct notions of the functions of the liver have led almost to the abandonment of certain preparations formerly employed, it would seem, both to stimulate and repress its secretion. Since physiology has taught that it is, in the language of political economy, a producer as well as a consumer, our views of its relations to the whole body and to each organ have been modified. It now receives more kindly treatment, though still found hard to abandon former errors. Physicians have perhaps re-acted too strongly from some previous methods of cure in these derangements. Scepticism threatens to make us too unmindful of them, and too cautious in the use of remedies an earlier generation found good.

If we had time to speak of the functions of respiration, circulation, absorption, excretion and reproduction, facts not less important in their bearings on medical practice would be found.

With brief reference to the nervous system, and we pass on. Our knowledge of it is yet limited, but in comparison with fifty years ago seems very considerable. Sir Charles Bell and Magendie had just taught the respective qualities of the anterior and posterior roots of the spinal nerves; but the legitimate fruits of their research could not be realized until Marshall Hall in 1832 discovered reflex action—"the greatest physiological discovery since that of Harvey." By this new light various normal activities, as well as symptoms of disease, were first interpreted. The actions of remedies thus came to be better understood. Light dawned on

the principles governing vegetative, organic-life processes. Facts imperfectly observed by these men have been fully verified by recent experimenters. The labors of Bernard, Robin, Dalton, Brown-Sequard and others, have brought out new points of great practical service. Paralysis has become intelligible by reason of new truths regarding nervous conduction. The removal of the cerebellum from living birds has taught us much we know of co-ordination of muscular movement. Bernard's teachings of the vaso-motor system have given true direction to many of our remedial agents. The relations which pain and spasm bear to the state of the circulation have been elucidated by direct observation and therapeutic measures. But hardly has the field been entered. The facts ascertained are but occasional links in the endless chain which reaches back into the darkness of the past, and forward into the mysteries of the future. We accept them with gratitude. They are the product of our own time, and mark the advance of modern physiology. There is scarcely an organ in the body whose functions are not now better understood than a score of years since;—scarce a process in the complex system of nutrition but has been enlightened by modern study; scarce a sensation of pleasure or pain but is more perfectly appreciated and explained than even ten years ago. The whole science is but of yesterday, comparatively speaking.

Again, at the time this Society was formed, there was at best a very imperfect appreciation of the necessity of linking morbid changes with the symptoms or treatment of disease. Our fathers could not look into the minuter details of structure, nor watch the more intricate processes of nature as can we. Their eyes were not armed with the perfect instruments which aid our vision. Then, general pathology held sway as does special now—hence a reason for the change which has been noted. We would be dull indeed if adhering to former methods, the logical results of former reasonings. No, we have brought these systems within range, and transfixed them by the electric beam which reveals their defects. Old

dogmas have been overturned with many of their remedial attributes.

This power of a true pathology is strikingly illustrated in the department of renal affections, elucidated by the researches of Richard Bright, who in 1837 first taught the relations certain signs bear to structural changes in the kidney. He furnished the clue to a train of symptoms, some of which had before been thought actual diseases. Others had been attributed to morbid changes in the brain, heart or lungs. Bright gathered up these various evidences of imperfect action, and traced back their origin to a common seat. Before his time the treatment of renal dropsies, uremic coma and convulsions, was uncertain and ill-directed.

Turning to cutaneous affections, we may again observe the fruits of a more correct pathology. Now we can classify them more accurately, and determine their natures more precisely. The present system of Wilson, founded on peculiar tissue changes, has greatly simplified their management. He has unified what was diffuse, and given true bent to research. Our knowledge of parasite agency is of recent date. But for this, patients with scabies and the varieties of tinea, would perhaps still be depleted by bleeding, low diet and general exhaustive measures. The subject of contagious germs has been newly awakened by Pasteur and kindred spirits. Of certain diseases, he (Pasteur) says: "It is in the power of man to make disappear from the surface of the globe parasitic maladies, if, as is my conviction, the doctrine of spontaneous generation is a chimera." That it is a myth most scientists now believe. Its epitaph has been written in characteristic language by Huxley: "But the tragedy of science; the slaying of a beautiful hypothesis by an ugly fact, which is so constantly being enacted under the eyes of philosophers, was played." And to how many a charming theory will these words apply! How often have the pioneers in natural knowledge stripped off the mask which concealed plausible error, and with a single incisive fact destroyed its false life!

Increased pathological knowledge has also taught that a number of diseases before thought primary, rarely occur

as such. Says Dr. Gull: "The investigations of morbid anatomy have thrown a flood of light upon the so-called idiopathic diseases. Formerly such affections were supposed to be of common occurrence, and the treatment of the day was adapted to their supposed violence. But how rarely now do we meet with a case of acute inflammation of the membranes of the brain, or of the peritoneum, or indeed of any other texture, which we cannot refer to some chronic lesion, or to some distinct cachexia; the only idiopathic part of the case being that which was formerly overlooked or unrecognized—some chronic tissue change unnoticed in the storm of acute disease to which it had given rise."

Turning to chemistry, we can barely glance at what it has recently wrought. It deals with matter, and takes no cognizance of vital force except to attempt its interpretation by chemical law. Hence it can calculate results with mathematical exactness. It tells us how much food and drink a man requires; how much oxygen he absorbs, and how much carbonic acid he exhales; how fast the tissues waste and form. It measures muscular and nerve power by weighing the products of excretion. It shows how waste of tissue affects the constituents of food, and how the loss may be prevented in the greatest possible degree. It has taught us how to recognize some of the commonest affections we are called upon to treat. It has analyzed the blood, thus enabling us to supply deficiencies and cure disease. It has taught the diffusion of medicines after entry into the circulation—has traced them to remote tissues—and now studies to know the effects there produced through the channels of oxidation and nutrition. The test-tube, associated with the microscope, discovers morbid action, tells the result of regimen and treatment, and guarantees success where fifty years ago all was uncertainty. Chemistry points out defects of nutrition or assimilation, pries into nature's secrets and extorts answers by delicate experiment. It even seeks to account for life itself by the mutual actions and reactions of molecular particles. Calling galvanism to its aid, it has decomposed matter previously thought elementary; and by spectrum ana-

lysis brought within range of human sight components of sun and stars. By synthesis it creates new bodies; by analysis breaks up and tests those already existent. It has aided pharmacy by introducing new remedies, and by divesting old ones of nauseous and inert constituents. By the discovery of anæsthesia it has abolished pain, robbed surgery of its chief terror, and given new impulse to vivisections. These are a few only of the facts of modern medical chemistry. It is now more active and far-reaching than ever before. Its possibilities cannot yet be known. The chemistry of nutrition in all its steps, of secretion, of sensation and of motion is being investigated by thousands of prying eyes and honest seekers after truth. With each new development let us hope to know better how to cure disease and grant relief.

Another reason for the difference between old and new school practice, arises from the present more perfect knowledge of the natural history of disease uncomplicated by art. At the commencement of this century neither the temper of profession nor public was favorable to its study. Not until a later period did the expectant plan come into vogue. By it we were taught to wait and watch, in cases where the indications were not clear. More attention began to be given the patient's surroundings, including fresh air and sunlight. Fifty years ago, no extended means of observing how much nature unaided could accomplish was in actual possession of physicians. The expectant plan has done good service here, but we owe more to the results of so-called medication according to the ideas of Hahnemann. His mode of cure has unwittingly afforded an opportunity to observe what results from a strict reliance on the healing power of nature. It has helped to separate the class of ailments which certainly tends to recovery, from the smaller class which surely tends to death.

The plan of non-interference also, leaving nature untrammeled in the contest, the medical attendant acting only when danger threatens, holds an important place in the conservative medicine of our day.

From these passive methods we have learned that dis-

ease is subject to natural laws; that certain of them are self-limited as Dr. Jacob Bigelow wrote years since: "incurable now by art, yet susceptible of recovery under natural processes." We thus recognize in sickness the beneficent hand of nature trying to repair any injury following the infraction of her laws. We have thus been led to greater conservatism in practice, and made to feel content with being the ally of nature, rather than the antagonist of disease. This knowledge teaches us to avoid active treatment in the acute eruptive fevers, as scarlatina, small pox, and typhus—particularly in the early stages. We forbear giving medicines at all unless special indications demand them. Then those causing least perturbation of the system are selected. Our science is not the mere administration of drugs. Quackery is founded on that idea. It is probably true that rational medicine doses less than any of the spurious systems of the time. It proves our growth and strength.

We have thus indicated some of the modes by which recent attention to the natural history of disease has wrought changes in practice. Lest there be a misunderstanding, it may be remarked that nature is not always beneficent. Up to a certain point she is invariably conservative; beyond it no less destructive. There may be considerable jarring of the structure, and yet its inherent power to correct will suffice. A sudden shock or long-continued pressure may overturn or undermine the fabric. Then, the very activities which before served to regulate, will tend to swifter and more complete disruption. These are the cases which demand prompt and intelligent interference, and fortunate will be he who both instinctively and by the light of science can foresee the danger in time to avert it, or being suddenly confronted by it, can stay its progress by the resources of his art. "The strength of modern therapeutics," again says Dr. Gull, "lies in the clearer perception than formerly of the great truth that diseases are but perverted life processes, and have for their natural history not only a beginning, but equally a period of culmination and decline."

The agencies so far considered belong to the domain of pure science. Their laws are as invariable as gravitation

or planetary motion. They aid, however, in clinical investigation and diagnosis. These last draw largely on simple observation. Much of the knowledge here gained is intuitive. When called to the bedside we may not be able to unriddle the problem by any known laws; and yet we cannot wait for science to explain. Were less at stake we might afford to stop and dream. But knowing that certain measures promise relief, action must be taken. Clinical medicine too includes all we can learn of the natural history, besides peculiarities of race or family, temperaments, pre-dispositions, age, hereditary transmissions and general surroundings. The present knows greater opportunities for its study than any former time. The tendency of population towards cities, coupled with a spirit of increased benevolence, have brought larger numbers of sick people together into hospitals, infirmaries and asylums. These are not the growth of half a century by any means, for hospitals sprang up soon after the birth of the Christian religion. Our care for the sick poor only faintly reflects the spirit of Him who regarded suffering with divine compassion, and taught the universal brotherhood of man. Yet at no previous time has there been so general a disposition to include within the scope of charity the entire range of suffering. And since a few years only has there been uniformity of system in the classification of hospital cases. The establishment of separate institutions for diverse classes—grouping diseases of special types—arranging them most favorably for study and comparison—all these give the superior opportunities now afforded the clinical observer. Of late the necessity for bedside instruction has taken hold of teachers and pupils. The better the means for supplying this demand the more successful colleges become. So keenly has the fact been felt that now each school seeks rather to show its hospital advantages than boast its celebrated names. It is a long step in advance. And yet we must regret that medical education, especially in the United States, is so defective. None realize it as sensibly as the profession itself. Our National Association is doing much for its improvement. Our State Society heartily seconds the

wish so generally felt. On us, the Medical Society of the County of Kings, is laid a responsibility in this matter which I am sure will not be disregarded.

Again, medical treatment has always been influenced by the prevailing idea of what underlies manifest symptoms. To know the quality of a disease has ever been believed the first necessity. No dissensions among professional men of all generations here. As science advanced, the means of arriving at this end have multiplied. Each decade has added to knowledge previously acquired. New methods of exploration have been instituted. Changes of structure and function of internal organs are now recognized, and symptoms formerly without meaning been made plain. We appreciate the large class of chest affections with a certainty unknown prior to auscultation and percussion. We look into the interior of the eye, and not only learn the nature of diseases peculiar to itself, but gain reliable information regarding the circulation in the brain, and morbid changes occurring in the kidney. Nearly all the instruments for illuminating the dark cavities are of recent birth. The various means for estimating the forces of propulsion within the body, of measuring its temperature, and of appreciating its irritabilities, date not beyond our recollections. These are not a tithe of the new aids now employed. Pathology also helps by explaining symptoms before without import, or falsely attributed to wrong factors. The recent knowledge that vegetations sometimes break away from the valves of the heart, and plug important vessels, has fully accounted for many instances of idiopathic gangrene of an extremity. Here then a new diagnostic fact illustrates a train of symptoms and necessarily varies treatment. The recognition of what will probably follow certain morbid conditions of the brain gives us the clue to a variety of nervous complications. Symptoms once described as diseases have found their subordinate sphere. Affections once believed identical, are known to be distinct. The various cachexiæ are more perfectly estimated. But this will suffice to indicate the influence which modern aids to diagnosis have exerted on the therapeutics of the day.

Further, the division of labor among medical men whereby specialties arose, became imperative with the increasing desire for knowledge. The fields of new inquiry became too extensive for any one mind to compass in all their departments. Says Tyndall: "The system of things which we call nature is, however, too vast and various to be studied first hand by any single mind. As knowledge extends there is always a tendency to subdivide the field of investigation, its various parts being taken up by different individuals, and thus receiving a greater amount of attention than could possibly be bestowed on them, if each investigator aimed at the mastery of the whole. East, West, North and South, the human mind pushes its conquests; but the centripetal form in which knowledge as a whole advances, spreading ever wider on all sides, is due in reality to the exertions of individuals, each of whom directs his efforts more or less along a single line." Such method is a feature of later times. Branches, now well developed, had only spasmodic life until made the subjects of special study by men peculiarly fitted both by tastes and opportunities for their work. These several lines converge to a common centre, and their mutual reactions are stimulating and healthful. New facts are thus brought within the circle of medical knowledge, and old errors exposed.

Nor would we ignore the effects of irregular systems on the profession. Indirectly they have been of service. Rational medicine is not willing to reject aught of good, through whatever channels it may come. It only refuses what is not proven. We believe in few specifics. Both reason and experience teach that a broader basis must underlie sound practice. In truth, the history of these systems go to prove the strength of ours, as they continue existence only by approximating more and more nearly the methods we pursue. But without seeking to conceal their influence, or ignore the "soul of truth" however small, which doubtless every belief of even moderate growth envelops, we still must measure each by its accord with reason and common sense. From this stand-point it will be perceived that medicine,

based as it is on the several sciences considered, and governed by laws variously derived, must be incompatible with systems founded on exclusive theories. It is this incompatibility which prevents union—which forestalls any attempt at honest commingling. We owe homage to that venerated idea, born of the stern necessity which demanded relief for the infirmities of fellow man. Our faith is in principles early derived from observation, nurtured during the pre-scientific period by priest and philosopher, which in latter times have brought to their advocacy the highest culture, the keenest experimentation, sound logic, vast clinical teaching, and have been verified by an advanced and modern scientific thought.

Next let us notice the past and present effect of theory in its relation to this question. The time is not long since medicine was dominated by such influence. Each doubtless contained a germ of truth. No rumor gains currency but had its beginning in some fact; no tradition coming down from remote ages but infolds a want, an experience or action of the past, which has its counterpart in our own times or persons. The fact of entertaining such is not reprehensible; the error is in allowing it to usurp the place of positive, abiding proof. Hypotheses may aid in our branch as well as in algebra. When confined to subordinate spheres of action much benefit may thus be derived. The labor of rational medicine has been to sift these, and by repeated winnowings secure the grains of wheat.

But, it may be urged, what gain to have even correct theories of life and disease, of catalytic action, psychical peculiarities, etc., whilst we possess no power to control their processes? The answer lies here. All thinkers will seek in some mode to account for the activities going on about and within them. To discover and accept the true, will at least exclude the false. Besides, it possesses force. "Right or wrong," says Tyndall, "a well-uttered theory has a dynamic power which operates against intellectual stagnation; and even by provoking opposition is eventually of service to the cause of truth." Formerly dogmatic, they are now subservient. To per-

ceive clearly how our present estimates of them have influenced practice, let us quote from a late president of our State Medical Society (Dr. White, 1870): "The greatest improvement we have to chronicle as occurring during the last forty years in the practice of medicine, consists in the broader and more rational views now taken of disease. Physiology and pathology guide in diagnosis and treatment instead of a preconceived theory. It would now be impossible for any one to lead a large number of the better portion of the profession into the adoption of a system so partial and unsatisfactory in its foundation as Broussaism, which prevailed to a great extent at the commencement of the period under consideration. No practitioner of the present day deems it necessary to bleed simply because the patient has pneumonia. No intelligent physician would be sustained in giving tartar emetic or turpeth mineral where croup was diagnosed, at least until its peculiar character was first ascertained." Theories then, as such, have lost their former power to direct our actions. They are entertained only long enough to be tested; are still employed as instruments for unearthing facts.

Again, we sometimes hear of the decay of general health as a reason for the change. Whether true or false, similar ideas have had place since the earliest historical records. Nevertheless, we know the average of life has been lengthened within a century past, and more than doubled since 1500. Medical art doubtless keeps alive a feeble class who would otherwise succumb. These blend with the more robust and form intermediate grades. Whether or not the general average of health is thus lowered, is still an open question. The belief does not enter largely into the estimate of physicians, or account in any marked degree for their modern milder practice.

But the development of new symptoms within a recent period, associated with their depressing effects upon the sick, accounts in a measure for the present supporting plan, as opposed to the lowering methods of fifty years ago. A living author (C. Handfield Jones) says: "It is difficult to form a decided opinion in the matter, but there seems reason to entertain the belief that failure of

nervous power is much more characteristic of disease of the present day than of that which prevailed forty years ago. For this there may be various causes; the greater confinement of large numbers of the population within doors, and often in unhealthy rooms and workshops; the harder struggle to be maintained in the battle of life; the greater amount of the *commoda vitæ* (luxuries of life) may all tend to increase the susceptibility of the nervous system, and to impair its resisting power."

With increased attention to hygiene we also find an important cause of change. This branch, formerly neglected, has now acquired strength to stand alone. It has sought out causes, taught the natural history of maladies, and proved the uselessness of combative treatment. It takes cognizance of all the circumstances which modify the effects of medicine. Age, temperature, season of the year, light, air, soil, drainage, modes of life, passions, diathesis, individual peculiarities, food, raiment;—in fact, all the surroundings of man are included in its study. Its investigations go further, and in directions different from those pursued by our fathers. Its influence is ever widening. It assumes an importance superior to the routine of medical practice. It teaches and restrains it by arguments derived from nature herself.

Another class of agencies which operate in the direction we are considering, may be grouped under that comprehensive and suggestive idea, "The spirit of the nineteenth century," — investigating, analyzing, gathering from all sources, securing greater precision by surer processes of reasoning, by experiment, by invention, by aids derived from physical science, and more than all by the indomitable energy of a host of laborers enlightened, prompted and often rewarded by it. One of the fruits of this spirit is seen in the ever increasing number of independent minds devoted to the interests of medical science. A legitimate outgrowth is the prevailing scepticism which challenges the legal claims of accepted doctrines. We recognize two qualities of this. One, the offspring of ignorance, is destructive; questioning not for the sake of truth, but to crush belief. The other is the healthy criticism of existing faith, not to destroy but to

prove it; a quality which every strong and honest mind possesses. The more diffuse becomes a sound education, the more this disposition shows itself. It examines every fact, and seeks its true value. It doubts theories not thoroughly canvassed, and practice not fortified by well directed experience. It is eminently healthful; burning up the dross, but makes the gold more lustrous by the fiery ordeal. It is accused of lack of reverence for high authority; but this is only apparent. It reviews each system from varied stand-points, and thus enlightened becomes more capable of judging rightly and teaching authoritatively. It pervades every department of "natural knowledge," and questions revelation itself. Without stopping to inquire its effects on religion; which we believe to lie outside the sphere of scientific fact—to be founded on truths miraculously revealed—we cordially admit its aid to a better understanding of nature. But the outgrowths of this wholesome quality—independent thought—involve danger to the cause it hopes to serve. To pass from old errors even to new truths, and avoid the inevitable shock of change, must be slowly done. Advantage will be taken of the transition to inculcate ideas which may captivate by their novelty and retard true science by their falsity.

Nor has medicine escaped the effects of reactions consequent upon loss of faith in doctrines once ardently professed. It has had periods of increase and decline —now believing much, then doubting all. The time was when to doubt was heresy. The spirit of intolerance was as potent in medicine as in religion. "To question," says Dr. Peaslee, "the infallibility of Hippocrates or Galen was as rare as to doubt the teaching of St. Paul or St. Augustine." The doctrines of the medical fathers was law. Their errors escaped criticism. This blind faith forbade inquiry and hindered progress. Not until our century was it supplanted by intelligent doubt. To this latter we owe much. But for it many facts now open would be a sealed book.

Another quality born of independent thought, so characteristic of the past twenty-five years, is analysis. Its bounds are co-extensive with the limits of knowledge.

Its modes of operation are as multiform as the laws which govern matter. Its tests are as minute and critical as they are decisive. Not content with physical elements, it seeks to grasp the essence of soul itself.

Again, the spirit of modern times is apparent in the ever widening range of diseases coming within the scope of medical influence. Who would have thought, five decades since, that intemperance would have a place here, to be subjected to laws of physical hygiene, and to be restrained by material remedies? We believe inebriety to be a disease affected by hereditary influence. Dr. Maudsley says: "Multitudes of human beings come into the world weighted with a destiny against which they have neither the will nor the power to contend; they are the step-children of nature and groan under the worst of tyrannies—the tyranny of a bad organization."

The present treatment of the insane was derived from a like cause. The knowledge of the interdependence of physical and psychical symptoms, both demanding conservative guidance, and clearly shown to depend on physiological and pathological laws, flows from the recent interpretations of the phenomena of life and disease.

There is abundant indication of this spirit in each department of our science.

"Now, as never before," writes Herbert Spencer, "men of science throughout the world subject each others results to the most searching examination, and error is mercilessly exposed and rejected as soon as discovered."

The rapid interchange of thoughts and ideas made possible by our more perfect methods of communication, has contributed largely to this end. Knowledge is now more generally diffused, and bears rich fruit.

In earlier years the ultimate actions only of drugs were studied. Now we seek, in addition, their local effects and their special modes of production, whether chemical, mechanical, or vital. We are not a whit in advance of our ancestors, nor they of the ancient Hindoo or Arab in observing the ultimate result of remedies. They watched as closely and observed as candidly as do

we. Yet their practice was empirical—not in its reproachful sense. We are proud of their deeds, but with new resources seek to lift our calling to a higher level.

The tendency of our times is well summed up by a late President of the British Medical Association (Dr. Acland): "We are living in a critical period of our country's history; in a new era in the history of man. Every part of our social fabric is undergoing scrutiny, revision, and reform. Government, trade, institutions, laws, the artificial usages of society, the character to be given to our children by the method of their early training, are not only being criticised, but are most of them being changed—changed with unexampled rapidity; and the change is, some think, a tendency to absolute perfection, or, according to one philosopher, a last plunge down the Falls of Niagara. The facility with which ideas are communicated through the whole human family, distinguishes our age from all that precede it. Our own profession is not exempt from their influences." But as here implied, this characteristic spirit is not free from peril. A balance wheel is ever necessary. We find in our ranks the party of progress and the party of order. They must be made to harmonize. Each has its functions, and within certain limits their relations are wholesome. One perhaps seeks to advance too rapidly; the other may be unduly conservative. Our endeavors must be to make each react properly on the other—now restraining, now urging forward, with mutual respect and earnest desire for genuine advancement.

In view of the facts noticed, can it be wondered at that some of the old landmarks have been forgotten, or that new methods have been adopted to correspond with modern revelations? On the contrary, should we not be astonished to find medicine pursuing the same old paths? Instead of diminishing confidence, or being a reproach, it should be our pride and hope; stimulating effort, strengthening faith, and widening our influence for good.

We all concede the change. I have tried to point out the chief agencies producing it. We may do well to note where it began; whether within our own ranks or

with the prior demands of the non-medical world. Not with the latter, we believe. Professional opinion has ever been in advance of society's knowledge of its medical wants. The laity, too long mystified by the intricacies of our art, is slow to be convinced. Reactions in public sentiment have frequently occurred, but usually from one extreme to its opposite. Fashion has its votaries here as well as elsewhere, and physicians have sometimes been its slaves, obeying its dictates. Certain remedies have their day, and pass into oblivion. Systems flourish for a time, and then become only facts in history. Dogmas dominate the multitude for brief seasons, and thus expend their force. These influences act their part in modifying opinion and practice; yet we must seek in the profession itself for the little leaven which has leavened the lump. In 1846, Sir John Forbes surprised his brethren by the publication of views far in advance of his time. He propounded a series of startling questions. They were radical—touching the foundations of practice. He set a power in motion which has aided immensely in establishing the present methods. Time has proved the keenness of his perceptions, and our art has been proportionately advanced. Other influences seconded his desires. Physiological arguments enlightened; pathology demonstrated; chemistry analyzed; physics supplied the means. A few years later, Dr. Bigelow, of Boston, satirically called attention to the importance of a "new departure." His essay gave a powerful impulse to the little stream which has now become a mighty river. Others pleaded, yea, demonstrated the same necessity. Now, physicians generally recognize the new order of ideas and seek their acceptance. A few only cling to pre-scientific dogmas. Careful thought convinces us therefore, that all material changes have, as a rule, originated within our ranks. Those who minister in healing have ever been more alive to the necessities of medical art than those minstered to.

But amid so much of change, the question arises as to what, in medicine, is fixed? Its fundamental principles are invariable, but the precepts guiding treatment depend upon the stand-point from which those principles

are viewed. These various angles account for the numerous sects which have existed. Rational medicine, knowing no exclusive theories, seeks to infold these principles and establish laws of action from observation of facts, reinforced by ample verification. But without perfect knowledge principles will be variously interpreted. And shall we exclaim, how have faith in medicine, because of disagreements among its expounders, as if principles were to be set up or cast down by the varying opinions regarding the best modes of carrying them into effect?

It is not so with other branches, either of politics, science or religion. We do not find clergy and churches of one mind as to the best mode of christianizing the world. The interpreters of civil law are not always found to accord; and it would be surprising indeed to have journalists, statesmen and honest politicians a unit on the subjects of tariff, reconstruction and other important questions of the day.

In view of these, we cannot wonder at divergent opinions about the details of a science so complex as ours; made up from materials derived from many sources; dependent on several classes of inquirers; in which discoveries and improvements, owing to the necessity for fidelity and capacity in individual observers, are often clogged with discrepancy and confusion.

Then there are erroneous impressions regarding the stability and powers of medicine. The idea of fixity has no analogy in other systems. Basic pillars remain, but the structure above assumes new shapes to meet the imperative demands of new ideas. This necessity evokes new forms of law, and is the normal outgrowth of an enlightened sentiment.

There should be no misunderstandings between the profession and the intelligent public on these points. We have, perhaps, claimed too much for our science; have been too anxious to explain away and mystify its failures, instead of confessing them. It has done well, but that it is destined to overcome all the diseases now pronounced incurable, or that through its agency the average of life will be greatly increased, we have no good reason to hope. It does, however, lie within the power of improved science

to "stamp out" some of the loathsome affections of the time; to add to the comfort of humanity by a more universal education of the laws of life; to distinguish more clearly between the classes curable and those not so, affording perfect relief to the former whilst lightening the heavy burdens which oppress the latter. To do these things is glory enough. Let us pursue them studiously —with enthusiasm—and not waste time or powers in following after *ignes fatui* beyond the reach of human grasp; making efforts as vain as were those of the cabalistic school who ransacked heaven and earth for the "philosopher's stone" and the "elixir of life."

There is also a too general idea that physicians themselves are becoming more and more incredulous regarding the power of drugs. True, fewer are now given than formerly, and why? We have learned to rely more on the curative powers of nature, to discriminate more perfectly between cases requiring aid and those which can be safely trusted to her care, subject to proper conditions of rest, temperature, diet and air. Old practitioners employ few remedies, but cling to these with childlike faith. The profession has learned the uselessness of some, and the wider range of efficacy of others. Their modes of preparation are more perfect, their physiological effects better understood. Those in use are more concentrated, more agreeable, divested of inert matter. Then, medicine now dares plead ignorance of many vital questions. It has less fear of subverting old theories by new facts.

Another drawback has been the desire to reduce therapeutics to an exact science. At best it is an art, but may be practiced in accordance with scientific rules. Yet the science and art must be distinct. One seeks to know, the other to do. Art may precede science, or science may give the first clear intimation of the necessity of art. In former times they had less interdependence. Of late, science has dignified art, and made it more skilful. There are excellent physicians whose scientific attainments are *nil*—whose practice is therefore empirical—whose knowledge of disease does not extend further than from the general aspect of the case in hand to others of

a similar nature previously observed. Between such practice and that directed by the light of thorough scientific training, lies the vast domain represented by the various branches of medical knowledge.

For a parallel, I quote from one of Mr. Froude's addresses to agricultural students. Says he: "The peasant's business is to make the earth grow food. The elementary rules of his art are the simplest, and the rude practice of it the easiest; yet between the worst agriculture and the best lie agricultural chemistry, the applications of machinery, the laws of the economy of force, and the most curious problems of physiology. Each step of knowledge gained in these things can be immediately applied and realized. Each point of the science which the laborer masters will make him not only a wiser man, but a better workman; and will either lift him, if he is ambitious, to a higher position, or make him more intelligent and more reliable if he remains where he is."

Similar intermediate steps, understood and applied, constitute the difference between the scientific practitioner and the mere routinist.

Another influence which has perverted practice, though now less potent, arises from the fact that medicine has been so hampered by superstition. Unlike other branches, it must lie outside the circle of general education. Having been long held as one of the "occult sciences," monopolized during its earlier history by those who claimed it as a special gift from Heaven, it is not strange that a sort of mystic halo has ever enveloped it. Though the spirit of our century has laid most of these ghostly forms, it is still the department about which false teachers and a credulous community love to weave the web of romance. The victims of its doctrines falsely interpreted, like to believe and do not like to be undeceived. The marvellous has a charm which the "logical feebleness of science" cannot break. The remedy lies in the surer process of education, rendering the mental soil unfit for the growth of weeds. Its just appreciation by the sceptical must be the legitimate fruits of healthful ideas cast into the soil by its honest expounders. Then, as

seed requires warmth, and light, and moisture to spring up and bear grain, so must the advocates of rational medicine bring their facts into the light of literature, water them with the dews of experience, and furnish warmth through a wholesome enthusiasm which goes far towards conviction. Without these we shall surely fail of much result. Apathy in the best of causes is without effect other than to induce a reaction against it.

Some may think I have belittled the value of the profession. Not so. I have sought to place it in its true light. No special pleading is needed to establish its claims. We can afford to speak the truth, relying upon its merits for timely vindication. Facts cannot shake the faith of those best informed, nor can light reveal aught we are not most anxious to avoid. We do not claim perfection. What system of government, education or philosophy can do it? Yet medicine has kept pace with other departments. It is in advance of, and perhaps restrained by the tendencies of society. We believe in no startling revolutions, overturning good and bad alike. We rather seek to separate the chaff from the wheat. We desire to hold fast the good of every century, to imbibe from every source, to lay under tribute every power which can aid in the prevention and cure of disease.

There are yet problems of vast import to be solved. The mysteries of medicine are not easy of explanation. If so it would not deserve its present rank. The multitudinous phenomena which fall under the observation of an inquiring physician are the results of laws far-reaching and obscure.

Divesting it of all scientific claims, and thus reducing it to the level of a simple healing art, tends to empiricism, and dwarfs the intellect. It is mystery which provokes activity and develops those royal qualities of mind which have distinguished so many in our ranks.

The possibilities of our times are immense. A score of years more will give results not yet conceived. Intelligent faith admonishes us that we are right on the threshold of greater achievements. Some claim to have already half entered the "promised land;" others still

grope and feel their way. But there is no royal road to truths yet undeveloped. Hard, earnest, faithful work alone furnishes the means. Much progress has been made since our Society was organized, but more remains unwrought.

"Medical science will be complete only when the structure and the functions of all the tissues and organs in the body shall be understood, and all the counteracting agents to all abnormal structures and diseased functions are ascertained."

The true end of all this research lies in an increased power to relieve suffering and cure the ills of life.

Just in proportion as this Society aims thus to do good, will its members enjoy the peaceful fruits of conscious right, and retain the generous confidence reposed in them by the citizens of Brooklyn. So doing, should any of us survive its centennial, we shall be able to scan the century closed, as now we contemplate the fifty years past, and with just pride feel that the Medical Society of the County of Kings has not existed in vain.